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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/924,626	08/09/2001	Charles A. Shaffer	05272.00001	3166

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EXAMINER

FISCHER, JUSTIN R

ART UNIT	PAPER NUMBER
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1733

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DATE MAILED: 09/23/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/924,626	SHAFFER, CHARLES A.	
	Examiner	Art Unit	
	Justin R Fischer	1733	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 August 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-7 and 9-23 is/are rejected.
- 7) ☒ Claim(s) 3 and 8 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s) _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>2</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 2, 4-7, 9-15, and 17-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Staten (US 1,097,824) and further in view of Panaroni (US 5,254,405) and Yunan (US 3,894,973). Staten teaches a method of producing a tire having a substantially filled core or cavity comprising the steps of combining chopped/comminuted tire particles or core bits with an adhesive material, vulcanizing the thus formed assembly, and introducing said assembly into the tire core (Page 1, Lines 90-100 and Page 2, Lines 5-10). In this instance, the adhesive material/solution forms elastic bonds for permanently connecting or "binding" the particles. Staten, however, fails to expressly describe the adhesive material as a "liquid virgin polyurethane". In any event, one of ordinary skill in the art at the time of the invention would have found it obvious to use polyurethanes as the specific adhesive material in Staten since it is extensively used as an adhesive or binder in the formation of tire components formed of chopped/comminuted tire particles, as shown for example by Panaroni (Column 1, Lines 14-51) and Yunan (Column 1, Lines 10-30, Column 2, Lines 50-59, and Column 3, Line 45). Thus, polyurethanes represent an extremely well

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known adhesive or binder material (described as a "popular binder" by Panaroni: Column 1, Line 40) that would have been readily appreciated in the method of Staten.

Regarding claim 2, as stated above, Staten suggests that the particles are cut up or comminuted (analogous to grinding).

Regarding claims 4 and 20, Staten states that a preferred embodiment involves arranging the filler within a tire cavity and eliminating the use of an inner tube (Page 2, Lines 30-40). However, a reference may be relied upon for all that it would have reasonably suggested to one having ordinary skill in the art, including nonpreferred embodiments (*Merck & Co. v. Biocraft Laboratories*, 874 F.2d 804, 10 USPQ2d 1843). In this instance, one of ordinary skill in the art at the time of the invention would have readily appreciated and recognized the ability to use the method of Staten in a tubed tire (arrange filler within inner tube).

With respect to claims 5, 18, and 19, Panaroni recognizes the well-known technique of adding a polyol and an isocyanate to form the polyurethane (Column 1, Lines 40-50).

Regarding claim 6, Panaroni recognizes the well-known use of toluene diisocyanate in the formation of polyurethanes (Column 5, Line 15).

Regarding claim 7, in an analogous manner to the claimed invention, the polyurethane is a flatproofing material.

With respect to claim 9, Staten teaches that the filler (combination of comminuted tire particles and adhesive/binder) is designed to occupy the entire core (Page 1, Lines 85-90).

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Regarding claims 10-12, it would have been within the purview of one of ordinary skill in the art at the time of the invention to appropriately select the amount of comminuted particles and adhesive material depending on the specific tire being manufactured (e.g. passenger, heavy-duty). In particular, the broad ranges of the claimed invention define a plurality of embodiments that are consistent with similar tire constructions. For example, the method of Yunan includes a filler formed of between 50 and 99 weight percent core bits (chopped elastomeric particles) and between 5 and 50 weight percent binder (Column 2, Lines 50-60), which is almost identical to the range required by the claimed invention. Lastly, applicant has not provided a conclusive showing of unexpected results to establish a criticality for the ranges of the claimed invention.

Regarding claims 13-15 and 21, applicant requires that the average particle size (volume) is less than 0.125 cubic inches, more preferably less than 0.0156 cubic inches, and more preferable between 0.000244 cubic inches and 0.125 cubic inches. Based on a spherical orientation, the aforementioned particles sizes suggest the following limitations regarding the diameter: less than 0.62 inches, less than 0.31 inches, and between 0.078 and 0.62 inches. These values define a broad range of diameters that are consistent with the dimensions of comminuted tire particles used to form tire filler materials. For example, Panaroni suggests a range of values between 100 microns and 2 inches (Column 3, Lines 10-19), which incorporates the entire range of claimed particle sizes.

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With respect to claim 17, the core bits of Staten are formed by cutting up or comminuting discarded inner tubes, casing, and solid rubber tires (Page 1, Lines 64-100).

3. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Staten, Panaroni, and Yunan as applied in claim 1 above and further in view of Khais (US 5,634,599). As set forth above, Staten, in view of Panaroni and Yunan, discloses a method of forming a filler composition comprising core bits and liquid virgin polyurethane. In this instance, Staten describes the chopping or comminuting (grinding) of used tires to form said core bits. While Staten fails to expressly describe multiple grinding steps, Khais recognizes that a common method of processing used tires is to initially shred or grind the tire into small pieces and subsequently further grinding or granulating said small pieces into "core bits" (Column 1, Lines 52-58). As such, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate multiple comminuting or grinding steps in the method of Staten since such a technique is well known in the tire industry and facilitates the formation of particles having a desired particle size.

4. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over the Admitted Prior Art (Page 3, Lines 3-12) and further in view of Inoue (JP 04087803). The Admitted Prior Art teaches a flatproofed tire construction in which flatproofed material ("core bits") is pumped directly into the tire casing. In this instance, the flatproofed material must be in particulate size in order to be effectively pumped into the tire casing and as such, the flatproofed material of the APA is analogous to the "core bits" of the claimed invention. While the APA describes the material as being "pumped" into the tire

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casing, the APA is silent as to the presence of a valve. In any event, one of ordinary skill in the art at the time of the invention would have readily appreciated and expected the tire of the Admitted Prior Art to contain a valve since a majority of filler materials to be disposed within the tire cavity are introduced in this manner, as shown for example by Inoue (Abstract). As such, it would have been obvious to one of ordinary skill in the art at the time of the invention introduce or pump the "core bits" of the APA via a valve assembly as is extensively done in the manufacture of a variety of core-filled tires.

5. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over the APA and Inoue as applied in claim 22 above and further in view of Khais. As previously stated, the flatproofed material of the APA is pumped into the tire casing and as such, it must be in particulate form (e.g. large chunks of flatproofed material cannot be efficiently pumped into casing). While the APA fails to recognize a first and second grinding step to reduce the flatproofed material to particulate form, Khais evidences that flatproofed material is conventionally processed using multiple grinding steps in order to efficiently obtain a desired particle size. Thus, one of ordinary skill in the art at the time of the invention would have found it obvious to form the particulate matter of the APA using multiple grinding steps as it represents the conventional processing of flatproofed material to obtain a desired particle size, there being no conclusive showing of unexpected results to establish a criticality for multiple grinding steps.

Allowable Subject Matter

6. Claims 3 and 8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art references of record fail to

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teach, disclose, or suggest either (a) forming a filler material by combining core bits and liquid virgin polyurethane and subsequently introducing said filler material through a valve or (b) forming a filler material by combining core bits and liquid virgin polyurethane and subsequently pumping said filler material into the tire casing and allowing it to cure within the tire. It is particularly noted that the filler material of Staten is assembled within a vulcanization mold and subsequently arranged as a unitary assembly within the tire cavity.

Conclusion


7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Justin R Fischer** whose telephone number is **(703) 605-4397**. The examiner can normally be reached on M-F (7:30-4:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Ball can be reached on (703) 308-2058. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.


Justin Fischer

September 16, 2003


Michael W. Ball
Supervisory Patent Examiner
Technology Center 1700